Tradable RECs for RPS Compliance: California Context

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Presentation Outline

- Existing renewable portfolio standard (RPS) procurement and compliance framework
- Potential benefits of tradable renewable energy credits (RECs) for RPS programs
- California's energy market
- Evaluation of tradable RECs for California's renewable market

California RPS Statute

Legislative Goals of RPS Statute:

(Public Utilities Code §399.11)

- Increase renewable energy generation serving CA
- Promote stable electricity prices
- Protect public health
- Improve environmental quality
- Stimulate economic development
- Reduce dependence on foreign fuels

RPS Procurement

Status of LSEs' renewable procurement

Investor-owned utilities (IOUs):

- The three large IOUs have reported that they will deliver 20% of retail sales in renewable energy in approximately 2012
- Before they reach 20%, they won't have surplus RECs to trade

Energy service providers (ESPs):

- Most ESPs delivered around 1% renewable energy in 2006 (self-reported data).
- ESPs in aggregate will have to procure approximately 4,000 GWh of renewable energy in 2010

Small and multi-jurisdictional utilities (SMJUs):

- Varied compliance status
- Small aggregate demand relative to large IOUs and ESPs

RPS Procurement

Approved procurement methods

The Commission has approved numerous procurement methods for RPS-obligated load serving entities (LSEs) to satisfy RPS targets:

- Long-term contracts
- Short-term contracts
- Contracts having curtailability as an attribute
- Contracts with delivery at any point in California
- Contracts that include firmed or shaped products
- Contracts that are “repackaged” from larger contracts of specific types
- Contracts entered into by a procurement entity
- RPS-eligible generation owned by the LSE

RPS Procurement

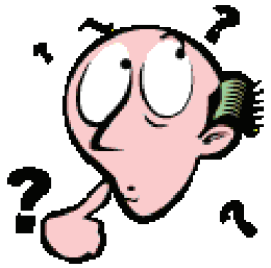
Approved flexible compliance

The Commission developed clear and flexible reporting and compliance rules:

- Unlimited forward banking of renewable procurement
- Can defer deficit up to 25% of incremental procurement target (IPT) – no questions asked
- Can defer deficit >25% of IPT with earmarked contracts that will deliver within 3 years
- For deficits not satified with above flexible compliance options, an LSE can petition the Commission to waive penalties pursuant to several approved reasons:
  - Seller non-performance
  - Lack of transmission
  - Insufficient response to solicitation
  - etc…

Given the available flexibility…

Why are tradable renewable energy credits (TRECs) necessary?



Potential Benefits of TRECs

Commenters have provided the following benefits of TREC markets on RPS compliance:

- Encourages renewable development
  - Not geographically restricted, so enables development of most cost-effective resources
  - REC revenue stream enticing to developers
- Helps overcome transmission issues
  - Can build in non-congested areas
- Increases market efficiency
  - More players, more competition, more liquidity
  - Contracting flexibility
- Facilitates compliance
  - Smaller LSEs otherwise challenged to make long-term energy commitments
  - Reduces contracting risk for LSEs with fluctuating or uncertain future load
- Lowers compliance costs
  - Because of increased market efficiency and additional renewable development, costs of renewable procurement decrease

California Context

- Senate Bill (SB) 107
  - CPUC authorized (not mandated) to allow RECs to count for RPS
  - Delivery rules: RPS energy must be delivered into California
  - REC eligibility: No RECs created for contracts signed prior to 1/1/05 unless explicitly stated or for QF contracts signed post-1/1/05
- Regulatory reality
  - Complex and lengthy permitting and siting processes
- Energy infrastructure reality
  - Transmission infrastructure needed statewide
  - Transmission congestion prevalent statewide
  - No surplus renewable energy to trade – need new build …

California Context

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Statute on Renewable Energy Credits:

The commission, by rule, may authorize the use of renewable energy credits to satisfy the requirements of the renewables portfolio standard established pursuant to this article, subject to the following conditions: (§399.16(a))

"Renewable energy credit" means a certificate of proof, issued through the accounting system established by the Energy Commission pursuant to Section 399.13, that one unit of electricity was generated and delivered by an eligible renewable energy resource. (§399.12)

"Renewable energy credit" includes all renewable and environmental attributes associated with the production of electricity from the eligible renewable energy resource, except for an emissions reduction credit issued pursuant to Section 40709 of the Health and Safety Code and any credits or payments associated with the reduction of solid waste and treatment benefits created by the utilization of biomass or biogas fuels. (§399.12)

California Context

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Delivery Requirements for RPS-eligible Resources:
(Public Resource Code 25741, CEC RPS Eligibility Guidebook)

Eligible renewable energy is considered "delivered" for:
1.In-state renewable electricity generation when the output must be used to serve end-use retail customers located within the state.

2.Out-of-state renewable electricity generation when the facility's first point of interconnection is within the WECC transmission system and s scheduled for consumption by California end-use retail customers. (Subject to verification by the accounting system established by the commission pursuant to subdivision (b) of Section 399.13 of the Public Utilities Code)

Subject to criteria adopted by the CEC, electricity generated by an eligible renewable energy resource may be considered "delivered" regardless of whether the electricity is generated at a different time from consumption by a California end-use customer.

California Context

California compared to other REC markets

California's RPS policy rules and its energy market differ from other states with REC trading for RPS compliance

Differences between CA and other states:

- Hybrid vs. fully deregulated market
- Permitting and siting rules
- Transmission: infrastructure, # of control areas
- Diversified renewable resources
- Flexible procurement options, flexible compliance mechanisms
- Penalties

California Context

Effect on TREC supply

The short-run supply of TRECs eligible for California RPS will likely be limited given the regulatory and energy market reality:

- Existing generation tied up in long-term contracts
- Statute limits REC creation from certain renewable contracts (§399.16(a))
- In-state deliverability rules *(§399.16(a)(3))*
- Lack of suitable transmission infrastructure
- 'Low-hanging fruit has been picked'
- *…LSEs already challenged to meet 20% goal, so little available surplus before ~2012*

California Context

Effect on TREC supply

TRECs could potentially come from the following sources:

- Distributed generation in-state
  - Largest potential short-run supply?
  - ~1,400 GWh* new generation from California Solar Initiative in 2010
- Excess generation from existing facilities?
  - Limited since statute restricts RECs from QF contracts?
- Out-of-state facilities?
  - Much of the out-of-state generation will be used to meet RPS policies, but might be available for California before these policies are fully implemented
  - Would additional out-of-state generation be eligible for the California RPS if TRECs were allowed, given the in-state delivery rules?
- New build?
  - Limited supply in short run
  - Will RECs help finance new projects in the future?

See slide 6 of “Distributed Generation's Role in the REC Market” presentation (Day 1 of Workshop)

California Context:

Implications

Stringent RPS goals

+

Limited short-term REC supply

= supply/demand imbalance

Evaluating TREC benefits for California

Considering the California context and given the market effects of a potential short-run supply and demand imbalance,

Would TRECs…

- Encourage renewable development?
- Help overcome transmission issues?
- Increase market efficiency?
- Facilitate compliance by smaller LSEs?
- Lower RPS compliance costs?

Benefits of TRECs in CA?

- **Encourage renewable development?**
  - TRECs won't affect current limiting factors for building renewables in CA: lack of transmission, complex and lengthy permitting, restrictive energy delivery requirements
  - Financing projects based on REC contracts is generally questioned:
    - long-term contracts remain primary method of obtaining project financing
    - price volatility in REC market
    - weak correlation between RECs and development on east coast

Benefits of TRECs in CA?

- **Help overcome transmission issues?**
  - California needs basic transmission infrastructure and network transmission upgrades everywhere
  - California Renewable Energy Transmission Initiative (CRETI): a statewide initiative to resolve transmission chicken and egg problem will be more effective
  - TRECs may relieve LSE's scheduling responsibilities since they won't have to arrange for energy delivery in state. But scheduling arrangements still must be made.

Benefits of TRECs in CA?

- **Increase market efficiency?**
  - Developers will have more contracting flexibility – can sell to more buyers, optimize revenue through additional types of contracts
  - LSEs will have more contracting flexibility – can satisfy RPS obligations through additional types of RPS-eligible contracting and lower risk by managing portfolio
  - More players enter a TREC market – brokers, marketers, traders
  - …All dependent on a sufficient supply of TRECs

Benefits of TRECs in CA?

- **Facilitate compliance?**

- For SMJUs and ESPs:
  - Enable LSEs not connected to the grid to comply
  - Enable smaller LSEs to match contract size to need
  - Enable smaller LSEs to manage risk
- For IOUs:
  - IOUs already on their way to 20% renewable deliveries
  - TRECs could act as a balancing mechanism, contributing to RPS compliance on the margin

Conclusion

Would TRECs:

- promote renewable development?
- decrease compliance costs?
- increase RPS market efficiency?
- facilitate compliance with 20% goal?
- be consistent with legislative goals of RPS program?

Questions?

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